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AUTHOR Bavendam, James M.; Harper, Nancy L.
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ABSTRACT

In a study of turnover in a midwest trucking firm, the files of 199 terminated drivers were used in a statistical analysis of 19 variables that might have been correlated to length of service. A series of interviews with drivers and key management personnel supplemented the statistical data. It was found that previously identified biographical correlates were less predictive than expected. It was suggested that these findings resulted from intervening variables, such as an adverse working environment, dissatisfaction, and perceived high opportunity. These results highlighted some of the logical problems with identifying intervening variables, the need for an alternative method of statistical analysis, and the possibility of a "satisfaction threshold" below which traditional correlates lose their predictive ability. In short, the study implied that information about the present organizational climate and satisfaction with working conditions were valuable in the selection of correlates to turnover, the interpretation of statistical information, and the identification of possible intervening variables. The study also suggested important redefinitions of key concepts, such as satisfaction, opportunity, and length of service. (RL)

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Organizational Turnover: Correlates, Satisfaction, Opportunity, and Length of Service

by

James M. Bavendam
Graduate Student
Department of Speech
University of Iowa
Iowa City, Iowa 52242
319-353-4975

and

Nancy L. Harper
Assistant Dean
College of Liberal Arts
(and Associate Professor
of Speech and Journalism)
University of Iowa
Iowa City, Iowa 52242
319-353-6965

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Nancy L. Harper

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Organizational Turnover: Correlates, Satisfaction, Opportunity, and Length of Service

In a study of turnover in a Midwest corporation, we found previously-identified biographical correlates to be less predictive than expected. We believe that these findings resulted from intervening variables such as an adverse working environment, dissatisfaction, and perceived high opportunity. Our results highlight some of the logical problems with identifying intervening variables in applied studies, reveal the need for an alternative method of statistical analysis, and suggest the possibility of a "satisfaction threshhold" below which traditional correlates lose their predictive ability.

Problem

In 1978 a Midwestern trucking firm ("Wheels") experienced a crude turnover rate among their drivers of approximately 123%. New-hires had an average length of service of about four to eight weeks. At an estimated cost of $1500 per new employee (representing expenses of hiring and orientation) and an indefinite dollar figure for lost revenue due to temporary lack of a driver, turnover was estimated to have cost the company roughly two million dollars for the year.

Our first contact with the company was in April of 1979. In our initial conversations, management representatives described the drivers as generally young, semi-skilled bluecollar workers that were typically mobile across trucking employers. Some management representatives were pessimistic about the possibility of reducing turnover given the "nature" of truck drivers. Others, however, pointed out that turnover rates at Wheels were much higher than those for other similar companies. A majority of management believed that "something" had gone wrong and that a solution could be found.

Method

Based on previous research, the most obvious approach to a solution in such cases is to determine employee characteristics which correlate with length of service and, on the basis of this information, develop a weighted application form designed to identify potential employees who are likely to stay with the company for the longest period. Buel (1964) verifies the predictive power of correlates such as age, marital status, reference person for the job, and years of education. Waters, et al. (1976) provide

further support for the power of age and marital status. A number of investigators have documented the successful use of a weighted application form based on such correlates (e.g., Buel, 1964; Lee and Booth, 1974; Waters, Roach, and Waters, 1976).

In spite of this support for the correlates approach, however, a number of researchers and consultants have warned that in some cases conditions with a particular company may render biographic characteristics unpredictive. In his review and codification of turnover literature, Price (1977) analyzes a number of correlates that have been identified and warns of the possibility of intervening variables.

Given the high level of disagreement about causes of the turnover problem among Wheels' management, and the intuitively powerful suggestion that company conditions can serve as an intervening variable, we decided to use the correlates approach but to supplement it with interviews of both managers and drivers.

Correlates

We randomly selected 199 files of terminated drivers from among those who had quit over a three-year

period. Length of service for these drivers ranged from one day to five years. As many traditional correlates were assessed as was possible from driver application information. Additional variables specific to the occupation of professional driver were also included. Data for a total of 19 variables were recorded (one variable, whether the driver had expected higher or lower than average pay, was discarded before analysis as only two of the 199 applicants noted higher than average expected pay). A step-wise multiple regression analysis was used to compare the independent variables to length of service (see Table I).

Interviews

Before undertaking the interpretation of the statistical analysis, we conducted a series of interviews with drivers and key management personnel. The management persons selected from the personnel, dispatching, and regulations departments were those who had high contact with the drivers and who regularly made decisions that affected the drivers. Drivers were selected primarily on the basis of availability for interview. Driver interviews were obtained at a variety of hours in the home-office drivers' lounge and at two in-state truck stops. A total of 35 one- to two-hour interviews were conducted; 27 were with drivers.

Results

Interviews

The series of independent confidential interviews did indicate organizational problems within the company. These included competition among departments, an impersonal relationship between the company and the drivers, negative attitudes towards the drivers, the stress of the driving job on the drivers' family life, psychological double-binds created by the structure of the driver's job, and an orientation program which amplified the feelings of stress and disappointment experienced by newly hired drivers.

Due at least in part to previous political and structural changes within the company, there was noticeable competition among the departments interviewed. Competition can be a positive, motivating force within a company and seems natural in an American industrial setting. However, this competition tended to be political one-upmanship and was sometimes manifested as open hostility. As each department was vying for power, a driver who had a problem or suggestion had no specific person to see for a solution or recognition. During the interviews, several drivers reported derrogatory remarks made by each department about the others. These intra-

organizational conflicts were disconcerting to the drivers and were partially responsible for the drivers' general feeling of hostility toward the main office.

The company also had an impersonal relationship with the drivers. Some of this was due to the nature of the driving job, some to the attitudes of home office personnel. Driving assignments were made by telephone. Driver contact with the company consisted primarily of these 30-60 second phone conversations several times per week. These contacts were thus both brief and impersonal and did little to establish an understanding work relationship. As the driver was virtually isolated from the company, maintenance communication was almost non-existent. This allowed misunderstandings and job pressures to increase without check.

In addition to these physical barriers, attitude biases posed a further constraint on personal interaction. The language used in the home office indicated a perception of the drivers as "second-class citizens," if not quasi-human. For example, the drivers' introduction and training session was called "processing"; in describing what drivers value, a management employee said, "I think they value their (work) record. . . . I don't think they deliberately, you know, throw off the traces and do what they want to do" (indicating their similarity to work animals, that their

preference would be not to work, and they needed to be closely monitored and told what to do). The interviews revealed general feelings that the drivers were often promiscuous when out on the road (while the management employees, of course, abstained). The wives of the drivers were never allowed to ride in the truck with their husbands. One of the reasons generally cited for this was that the drivers would have a much higher chance of an accident if their wives were in the cab (yet, none of the management employees ever felt their own safety jeopardized when driving with a spouse). The attitudes themselves are not at issue, but how they functioned is. It seemed that these attitudes created a driver stereotype so alien to the management that it was nearly impossible for the management to be able to effectively collect or recognize data pertinent to problems (e.g., driver complaints), asses the data effectively, and deal with the problems.

A significant problem created by the structure of the irregular driving job is pressure on the drivers' family relationships. Few Wheels drivers could predict when they would be home. As a result, no family or social activities could be planned in advance. Drivers were not given time off or formal scheduling privileges even for such reasons as attending their children's weddings.

Management personnel perceived these problems but accepted them as part of the job and showed little interest in solving them. Immediately prior to this study there had been a renewed effort to try to schedule the drivers so they could be home nearly once per week, but the work schedules remained unpredictable and the pressures on family relationships had not declined.

Probably the source of greatest conflict was that the structure of the driving job placed the driver in a double-bind. Federal regulations limit driving time to ten-hour shifts which must be separated by eight-hour rest periods. Each driver keeps a log which is periodically sent to the home office. A regulations department reviews the logs and sends a warning letter (viewed as punishment) to any driver who violates these regulations. Too many warnings are grounds for dismissal. However, a dispatcher does not always know how many hours a driver has accumulated and can make demands that involve illegal, excess driving. The dispatcher's goal is to move freight, satisfy customers, and make profit for the company. It is to the driver's and company's financial benefit that the driver drive as many hours as possible. This leads to a tendency for the drivers to falsify their logs and drive extra hours. There are times when this is encouraged (though not necessarily openly or directly) by the dispatcher to satisfy a customer in special need of a particular shipment. A driver can refuse to drive over-hours but

it is not to his financial benefit to do so and he risks disfavor from the dispatchers if he does. The drivers believe disfavor from the dispatchers can result in "bad loads" (loads of low compensation or requiring manual unloading" or less than cooperative behavior in scheduling the driver's time at home. Thus, the drivers perceive it necessary to please the dispatchers and not be caught by the regulations department. These opposing pressures were great enough to produce a multitude of anecdotes about drivers who spontaneously quit when a dispatcher lost his temper and verbally abused them, about dispatchers assigning "bad loads" to those who refuse to drive excess hours, and about drivers receiving offensive warning letters from the regulations department. The general management attitude was that this behavior was a result of a weakness of character of the drivers, not a result of company action.

The last major element which amplifies the effect of these problems is the driver orientation program. During the day and a half in which the policies and procedures of the company are described, the new-hires receive an ideal, unrealistic picture of the company. The company claims to have a warm, friendly, caring

attitude and that the drivers can expect to get home relatively often and to always be able to have a choice of loads. The company's turnover statistics imply that it usually takes a new-hire about four to six weeks to realize how misleading this picture is.

Not identified as a company problem as such was a perceived high level of job opportunity among the drivers. All management employees and drivers interviewed agreed that a licensed, experienced driver could find a job and be driving within a week. Some reported job searches as brief as three days. This perception of job opportunity was independent of qualifications of driver skill, previous driving record, etc. It was a common belief that some companies were in such great need of drivers that they would aid potential employees in falsifying their driving records to make them legally elligible for the job. This seemed to make the drivers ready to quit if conditions became too disagreeable at Wheels. However, when the drivers were questioned further, a few admitted that they would not want to work for the indiscriminate companies but would try to wait for employment with a more reputable one. These more desirable jobs were reported to be much harder to find. Thus, some of the drivers seemed ready to quit at any time and willing to work for nearly any firm while others who wanted to drive better equipment

and avoid possible legal difficulties preferred to wait for a better job. In short, as a result of our interviews, we believed that the problems within the company produced low satisfaction in the drivers, and that low satisfaction combined with potentially high job opportunity might reduce the predictability of the biographic correlates.

Correlates

Analysis of the biographical data indicated that only height and weight were significantly colinear (see Table 1).

- Table I about here -

The total variance accounted for was 13.7%. Age, type of reference, and number of driving jobs did not attain statistical significance and were not included in the calculations. The results indicate that the maximum variance accounted for by any correlate was 4%. At least one correlate (age) identified by much previous research did not attain statistical significance. None of the variables attained a satisfactory predictive level.

Discussion

We considered three main hypotheses which might explain the limited predictive ability of the correlates:

(a) low satisfaction produced by the adverse conditions within the company, the conflicts, double-binds, negative attitudes, etc., and perceived high job opportunity reported unanimously by drivers and management acted as intervening variables (Price, 1977);

(b) there are variables that would satisfactorily correlate with length of service but they were not tested; and

(c) the trucking industry is somehow an anomaly and no variables are predictive.

Low satisfaction could have acted as an intervening variable. We believe that it did not only because of company conditions but from the interviewees who independently stated that the drivers were generally dissatisfied. We did not administer any specific test of satis-

faction.

High job opportunity can also act as an intervening variable. There was unanimous agreement among the interviewees that the demand for drivers was much greater than the supply. We did not investigate national statistics regarding the issue, but perceived opportunity seemed to be an important consideration in the drivers' quit/stay decisions.

The second hypothesis is that we may not have tested variables which would have been predictive. One could search for additional biographic correlates or indicators of personality traits which would enable a person to remain employed at Wheels for longer lengths of time. However, while this may be a fruitful endeavor, it avoids the issue at hand: Why were correlates which had been identified by previous research as predictive, less than satisfactorally predictive at Wheels?

The third hypothesis is that no variables are predictive. While our levels of significance of results would tend to indicate the results were not a "fluke," could there be something about the population of drivers or the nature of the driving job which prevents satisfactory prediction?

Our general belief is that there is no reason to believe either the industry or the population of drivers is an anomaly. However, it could be possible that some correlates might be less effective predictors for truckers than they might be for clerks. Specifically, some correlates that are effective for a company with a single location might reflect the way in which the employees see themselves as being similar. Previous organizational literature (e.g. Kanter, 1977) would suggest that the more existing employees see a new-hire as being similar to themselves, the greater the chance of that new-hire's success and long tenure. Since truckers are basically isolated from their company and fellow employees, correlates tapping perceptions of similarity would not be as useful as those reflecting mastery of job skills, etc. However, the sub-population of variables which might be affected by the drivers' job contingencies should have minimal effects on the predictive power of the total number of variables used.

We believe that the first hypothesis concerning intervening variables was the most probable explanation. It is important to note that there is no logical way we could conclude, "cause." Though the interviewees were highly consistent in their reports on satisfaction, satisfaction-related work conditions, and job oppor-

tunity, this is still extremely soft data. While it may be intuitively compelling, we did not actually test for level of satisfaction. (Even if we had, the test results could be challenged on the basis of the test scores limited correlation with turnover per se [Mobley, Horner, and Hollingsworth, 1978]. However, the correlation with the test and turnover itself may not be the same as the correlation of test results and satisfaction as an intervening variable.) Even if we could in fact establish that satisfaction was low and perceived job opportunity was high, until they are actually manipulated and changes in correlate prediction ability observed, no causal connection can be established. Unfortunately in an applied situation, one's goal is not to establish intervening variables. On the basis of the information we had, we still had to accept what we believed to be the most probable explanation.

It is likely that the effects of low satisfaction were increased by the misleading orientation program. The negative impact of company conditions was probably increased because they were unexpected. The driver orientation program was a major source of complaint. Expectancy theory (Janis, 1958) would predict that the false perception of the company elicited by the program would significantly increase the impact of negative working conditions because they are un-

expected. The result of such a program is likely to be increased stress and thus increased turnover. In cases where orientation programs have been altered to include presentation of negative as well as positive information (e.g., Sperling, 1975), those receiving a realistic presentation of their prospective job displayed the lowest rate of turnover. An all-favorable presentation does not significantly increase job acceptance rate, but results in much lower length of service.

We earlier rejected the notion that the trucking industry is an anomaly. However, the level of opportunity for driving jobs is unusually high. High opportunity, as typically defined in turnover research, is created by a high proportion of available jobs to available workers. Price (1977) says that knowledge of high opportunity by employees results in higher turnover. He claims that employees do have this type of information and that (on the basis of research by Matilla (1974)) 50% to 60% of all workers have a new job before quitting their previous one. In this study only 41% of the drivers hired by Wheels claimed present employment at the time of application. There also seemed to be a high rate of spontaneous termination with the company. Still, this was explained both by the management and the drivers in terms of high opportunity, and it probably is a major factor in

explaining the high turnover.

Economic opportunity alone, however, probably does not account for turnover in this or any other organization. We argue, from this study, that opportunity is not completely independent of satisfaction. Assuming that a person wants to replace his present job with one that is in some ways more satisfying, the higher a person's satisfaction with a job, the lower the perceived opportunity of replacing it with a more satisfying one. Thus if I am pleased with my work, status, pay, social environment, etc., I will perceive it as more difficult to replace such a job and I will be less likely to leave this one. The converse should also be true. If working with employee X is so greatly upsetting that it is destroying any redeeming characteristics of the job, stepping from a professional job to pumping gas (if there is any to pump) may be an improvement. I will perceive a high opportunity of obtaining a job that will be more satisfying than my present one, not just one equal to it in superficial form. Thus, the results of this study lead us to conclude that improving working conditions would lead to higher satisfaction and thus to lower perceived opportunity.

Implications

The results of this study suggest that certain key concepts in organizational behavior research, especially

turnover research, need to be more carefully defined and that our traditional research methods may be inadequate.

Definitions

Satisfaction. This study emphasizes the important role of employee satisfaction in organizational turnover. Determining the correlates of turnover, and using this information to refine hiring criteria and training/orientation programs, is an approach which makes sense only if there are no significant intervening causes for the turnover problem. This study indicates that before using the correlate approach one must determine the satisfaction level of employees. As more studies investigate the relationship of satisfaction (or the more general concept of "climate") and turnover, it should be possible to identify a "satisfaction threshold." This study suggests that if satisfaction is below a certain minimum threshold, the correlates approach will fail to be predictive.

Testing this hypothesis requires a longitudinal sutdy. Such a study would ask, is there some type of threshold effect above which correlates would be meaningfully predictive? Also, is this hypothetical threshold job-specific or culturally indigenous? Initiating a company development program with a periodic repetition of

this study and a measure of employee satisfaction would enable one to identify at what level of the satisfaction index the correlates became predictive. This index could then be applied to other companies and occupations to assess its generalizability. We would not be surprised to discover a satisfaction threshold effect that is relatively independent of specific job types (though the subjective source of satisfaction -- status, pay, general working environment, etc. -- may vary widely across occupations).

Opportunity. This study further suggests that, in turnover research, "opportunity" must be defined not only as an objective variable (e.g., in terms of supply and demand statistics) but as a subjective variable (in terms of the employee's perception of alternative possibilities). Though Price and others have defined opportunity as independent of the organization rather than as a psychological characteristic of the employee, they do admit that an employee must know about opportunity before it can have any effect. The fact that Wheels' drivers often quit spontaneously, in a moment of severe anger or frustration, and that less than half are currently employed when they apply, leads us to believe that is is perceived opportunity that affects termination decisions. For making

nation-wide, or even industry-wide, predictions, supply and demand figures are no doubt predictive. But for predictions within a particular organization, the individual employee's perception of his or her chances of finding a "better" position is likely to be more highly correlated with turnover.

Length of Service. Operationally defining "length of service" is a problem which plagues turnover research. Some studies identify correlates of present employees and return to an arbitrary point (e.g., six months later) to investigate the differences between those who are still

with the company and those who have since left. This approach is susceptible to errors resulting from temporary fluctuations in organizational climate and does not take into account data which reveal the history of the organization, that is, patterns of high and low turnover in relationship to patterns of hiring, economic trends, and so on. Another approach, used in this study, is to define length of service as a continuous variable. Terminated personnel files, which are easily accessible, then become primary sources of data. This approach takes company history into account but does not make use of comparative data gathered from currently employed, long term personnel.

Comparison of these approaches, and the results of this study, suggest a third alternative to defining length of service. First, length of service should be dichotomized into "quit" or "stay." Initial analysis of subjects in each category should be carried out in the context of "minimum profit." That is, if company X estimates that it takes eight months of employment for an individual to "repay" his/her hiring and training costs, we are primarily interested in those who stay longer than eight months. It is at that point (or reasonably after) that the quit/stay threshold should

be placed. In this way all current employees who have stayed longer than eight months can be tested for correlate establishment and all available personnel files of pervious employees become potentially useful. This approach combines the advantages of the two common approaches. It allows maximal use of available data, is less sensitive to temporary adverse company conditions, and allows correlates to be maximally predictive.

Research Methods

Traditionally, turnover studies using correlates have employed multiple regressions analysis to establish the usefullness of the different correlates. While this seems superficially adequate, it is conceptually less than optimal. When we search for variables which can identify a subpopulation, we are actually searching for variables which can discriminate between the desired subpopulation and the remainder of the population. Step-wise discriminate factor analysis does exactly this. By indicating the best discriminating variables, we avoid variables which correlate highly with both our desired group and our undesired group. As discriminant analysis is based on multiple regression, we are not losing any of the power of this statistical

approach; yet, discriminant analysis is more directly applicable to turnover problems. We dichotomized length of service to quit/stay (qualified by one year of service) and performed a discriminant analysis on the turnover data from Wheels (see Table II).

- Table II about here -

Note that age is now significant. This is consistent with previous research. The decrease in variance accounted for (Wilks lambda=.888) is attributable to the information lost through dichotomizing the dependent variable. However, even though less variance is accounted for, both statistical calculations yield the same results when classifying employees as short or long-term. It is not clear why age is sensitive to this redefinition of the dependent variable.

Discriminant analysis not only can select the variables which can best statistically distinguish two groups, but can do so for more than two groups. Thus, in a large corporation or manufacturing plant we may not only be able to select those who will have longer tenure but select those persons' optimal department(s) or duties at the same time.

Conclusion

In short, this study implies that information about the present climate or satisfaction with working conditions can be infinitely valuable in the selection of correlates, the interpretation of statistical information, and the identification of possible intervening variables. It also suggests important redefinitions of key concepts such as satisfaction, opportunity, and length of service, and that discriminant analysis can be a useful took in correlate selection and use.

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Table I

Step-wise Multiple Regression Analysis of Wheels Turnover Data

Results of Analysis			
Independent Variable	% Variance	Cumulative %	α
Number of States Driven Professionally	4.1	4.1	$<.01$
Previous Union Membership [a]	2.6	6.7	$<.01$
Employed at Time of Application [a]	2.3	9.0	$<.01$
Previous Military Experience [a]	.7	9.7	$<.01$
Number of Previous Accidents	.8	10.5	$<.01$
Previous Company Type [b]	.7	11.1	$<.01$
Number of Previous Injuries	.7	11.8	$<.01$
Driver Training [a]	.4	12.2	$<.01$
Years of Education	.3	12.5	$<.01$
Length at Current Address	.3	12.8	$<.01$
Years of Previous Driving Experience [c]	.2	13.0	$<.01$
Number of Driving Violations	.2	13.2	$<.01$
Number of Physical Limitations	.2	13.4	$<.01$
Marital Status [d]	.1	13.5	$<.01$
Weight [e]	.1	13.6	$<.01$
Height [e]	.1	13.7	$<.05$

Age, Reference, and Number of Previous Driving Jobs ($\alpha > .05$)

Dependent Variable: Months of Length of Service

a. Answer: yes/no
b. Regular of irregular route carrier
c. Wheels require at minimum of one year, "long-haul" experience
d. Married/not married
e. Since up to 20,000 pounds of freight had to be regularly loaded or unloaded manually, we believed there might be an impact of physical size on job tenure.

Table II

Discriminant Analysis of Wheels Turnover Data

Grouped Dependent Variable =

Employees who have tenure shorter or longer than one year

Cannonical Correlation Coefficient	.334
Wilks' Lambda	.888
Chi Square	22.237
Degrees of Freedom	9
Significance	.008

Variables in Turnover Factor	Variables in Equation	Wilks' Lambda	Significance
Number of States Driven	1	.954	<.003
Now Employed	2	.939	<.003
Age	3	.927	<.003
Years of Education	4	.918	<.003
Previous Company Type	5	.911	.003
Military Experience	6	.905	.004
Marital Status	7	.899	.005
Previous Violations	8	.894	.007
Previous Injuries	9	.888	.008